Contribution ID: **278** Type: **Talk**

Constraints on light scalars from PS191 results

Tuesday, 31 August 2021 17:30 (30 minutes)

Based on work 2105.11102 (https://doi.org/10.1016/j.physletb.2021.136524).
We argue that the fixed target experiment PS191 operating on a proton beam of 19.2 GeV at CERN in the eighties was sensitive to hypothetical light scalars produced by mesons and decaying to charged particles. The experiment was dedicated to searches for sterile neutrinos produced in weak meson decays and decaying into final states with pairs of charged particles: electrons and muons. Two charged tracks from the same point have been adopted as the signal signature. Exploiting the same signature we use the negative results of searches at PS191 and place new limits on the light scalars coupled to the Standard Model (SM) particles via mixing with the Higgs boson. In particular, previously allowed region of masses 100–150 MeV and mixing above 4×10−4 is disfavored. Our analysis can be extended straightforwardly to models with other patterns of scalar couplings to SM particles.

Is this abstract from experiment?

No

Name of experiment and experimental site

N/A

Is the speaker for that presentation defined?

Yes

Details

Igor Krasnov, INR RAS, Russia, http://inr.ru/english.html

Internet talk

Yes

Primary author: KRASNOV, Igor (INR RAS)

Co-authors: GORBUNOV, Dmitry (Russian Academy of Sciences (RU)); SUVOROV, Sergey (INR RAS, Paris U., VI-VII)

Presenter: KRASNOV, Igor (INR RAS)

Session Classification: A High Energy Particle Physics